25. (new) A method of producing a product according to a process essentially controlled by a set of n parameters X_i affecting a set of k properties Y_j characterizing the product, said method comprising:

i. assigning values to a set of k property weights w_j representing relative importance of said properties Y_j for the characterization of said product;

ii. establishing property behavior mathematical relations giving an estimated property Ye_j for each said property Y_j in terms of said parameters X_i from given parameter data and associated property data;

iii. using said property weights w_j to establish a goal function in terms of property weighted deviations between the estimated properties Ye_j and corresponding specified goal values for said properties Y_j;

iv. minimizing the goal function to generate a set of n optimal parameter values for said parameters X_i; and

v. using said set of optimal parameter values in said process to produce said product.

26. (new) A method according to claim 25, wherein said product is a composition of matter, said set of optimal parameter values characterizing an optimal formulation for the composition.

27. (new) A method according to claim 26, wherein said product is a pharmaceutical product, said set of optimal parameter values characterizing an optimal formulation for the pharmaceutical product.

28. (new) A method according to claim 25, wherein the values for said property weights w_j are obtained using an algorithm based on an analytic hierarchy process.

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29. (new) A method according to claim 28, wherein said given property data are obtained through a number l of experimental runs of said process using said given parameter data, each said run using a distinct set of values for said given parameter data.

30. (new) A method according to claim 29, wherein said number of experimental runs of said process each uses a selected distinct set of values for said parameters X_i covering substantially all extreme values within a chosen range of values for each one of said parameters X_i, wherein l is at least equal to $n + 1$ and is substantially less than a number used in the Fractional Factorial Matrix method.

31. (new) A method according to claim 27, wherein the values for said property weights w_j are obtained using an algorithm based on an analytic hierarchy process.

32. (new) A method according to claim 31, wherein said given property data are obtained through a number l of experimental runs of said process using said given parameter data, each said run using a distinct set of values for said given parameter data.

33. (new) A method according to claim 32, wherein said number of experimental runs of said process each uses a selected distinct set of values for said parameters X_i covering substantially all extreme values within a chosen range of values for each one of said parameters X_i, wherein l is at least equal to $n + 1$ and is substantially less than a number used in the Fractional Factorial Matrix method.

34. (new) A method according to claim 25, wherein said goal function is expressed as follows:

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$$G(X_i,...X_n) = \sum_{j=1}^{k} w_j^2 (Ye_j - O_j)^2$$

wherein O_j are said specified goal values for said properties Y_j.

35. (new) A method according to claim 34, wherein said minimizing step is performed by successive iterations of:

$$G(X_1,...,X_n) = \sum_{i=1}^{k} [f_i(X_i,...,X_n)]^2 .$$

36. (new) A method according to claim 35, wherein said goal function is minimized according to one or more specified ranges (a_i,b_i) wherein $a_i < X_i < b_i$ for one or more of said optimal parameter values.

37. (new) A method according to claim 25, further comprising the steps of:

performing experimentally said process using said set of optimal parameters values to obtain corresponding experimental values for said properties Y_j;

ranking said set of optimal parameters values over predetermined alternative sets of parameters values for said X_i.

38. (new) A method according to claim 37, wherein said ranking step is performed using an algorithm based on an analytic hierarchy process.

39. (new) A method according to claim 37, further including the step of:

incorporating said set of optimal parameters values and said corresponding experimental values for said properties Y_j respectively into said given parameter and associated property data;

repeating said steps ii) to iv) to generate a new set of optimal parameters values for said parameters X_i.

40. (new) A method of producing a product using optimized process parameter values, said process being essentially controlled by a set of n parameters X_i characterizing a formulation for said product, said parameters X_i affecting a set of k properties Y_j characterizing the product, said method comprising:

a) conducting a number of l of experimental runs of said process each using a selected distinct set of values for said parameters X_i covering substantially all extreme values within a chosen range of values for each one of said parameters X_i, wherein l is at least equal to n + 1 and is substantially less than a number used in the Fractional Factorial Matrix method;

b) measuring values for said properties Y_j characterizing the product in each of said l experimental runs, whereby parameter data and associated property data are obtained from said selected distinct set of values for said parameters X_i and said measured values for said properties Y_j, respectively;

c) determining an importance of said properties Y_j for the characterization of said product, comparing said importance of said properties Y_j relative to one another, and assigning values to a set of k property weights w_j representing a relative importance of said properties Y_j for the characterization of said product;

d) calculating a set of optimal parameter values for said parameters X_i using said measured values for said properties Y_j and said assigned values of said set of k property weights w_j; and

e) producing said product using said optimized process parameter values X_i calculated in the previous step.

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41. (new) A method according to claim 40, wherein said product is a pharmaceutical product, and said process is a formulation of said product.

42. (new) A method according to claim 41, wherein said step of calculating comprises:

establishing property behavior mathematical relations giving an estimated property Ye_j for each said property Y_j in terms of said parameters X_i from said parameter data and associated property data;

using said property weights w_j to establish a process goal function in terms of property weighted deviations between the estimated properties Ye_j and corresponding specified goal values for said properties Y_j; and

minimizing the process goal function to generate a set of optimal parameter values for said parameters X_i.

43. (new) A method according to claim 42, wherein the values for said property weights w_j are obtained by an algorithm based on an analytic hierarchy process.

44. (new) A method according to claim 40, wherein $l = n + 1$.

45. (new) A method according to claim 42, wherein $l = n + 1$.

46. (new) A method according to claim 43, wherein $l = n + 1$.

47. (new) A method according to claim 41, wherein said goal function is expressed as follows:

i. $G(X_i,...X_n) = \sum_{j=1}^{k} w_j^2 (Ye_j - O_j)^2$

wherein O_j are said specified goal values for said properties Y_j.

48. (new) A method according to claim 47, wherein said minimizing step is performed through successive iterations.

49. (new) A method according to claim 48, wherein said goal function is minimized according to one or more specified ranges (a_i, b_i) wherein $a_i < X_i < b_i$ for one or more of said optimal parameters values.

50. (new) A method according to claim 41, further comprising the steps of:

f) performing experimentally said process using said set of optimal parameters values to obtain corresponding experimental values for said properties Y_j;

g) ranking said set of optimal parameters values over predetermined alternative sets of parameters values for said X_i.

51. (new) A method according to claim 50, wherein said ranking step is performed through an algorithm based on an analytic hierarchy process.

52. (new) A method according to claim 41, further including the steps of:

h) incorporating said set of optimal parameters values and said corresponding experimental values for said properties Y_j respectively into said given parameter and associated property data;

i) repeating said steps a), b) and d) to generate a new set of optimal parameters values for said parameters X_i.